

**§ 94.505 Sample selection for testing.**

(a) At the start of each model year, the manufacturer will begin to select engines from each Category 1 and Category 2 engine family for production line testing. Each engine will be selected from the end of the production line. Testing shall be performed throughout the entire model year to the extent possible. Engines selected shall cover the broadest range of production possible.

(1)(i) The required sample size for Category 1 engine manufacturers is one percent of projected annual U.S.-directed production for all Category 1 engine families, provided that no engine tested fails to meet applicable emission standards. Test engines shall include a proportional sample from each engine family. The required sample size is zero if a manufacturer's projected annual production for all Category 1 engine families is less than 100.

(ii) The required sample size for a Category 2 engine family is one percent of projected annual U.S.-directed production for that engine family, with a minimum sample size of one test per model year provided that no engine tested fails to meet applicable emission standards.

(2) Manufacturers may elect to test additional engines. All additional engines must be tested in accordance with the applicable test procedures of this part.

(3) The Administrator may reject any engines selected by the manufacturer if he/she determines that such engines are not representative of actual production.

(b) The manufacturer must assemble the test engines using the same mass production process that will be used for engines to be introduced into commerce.

(c) No quality control, testing, or assembly procedures will be used on any test engine or any portion thereof, including parts and subassemblies, that have not been or will not be used during the production and assembly of all other engines of that family, except with the approval of the Administrator.

[64 FR 73331, Dec. 29, 1999, as amended at 68 FR 9787, Feb. 28, 2003]

**§ 94.506 Test procedures.**

(a)(1) For engines subject to the provisions of this subpart, the prescribed test procedures are those procedures described in Subpart B of this part, except as provided in this section.

(2) The Administrator may, on the basis of a written application by a manufacturer, prescribe test procedures other than those specified in paragraph (a)(1) of this section for any engine he/she determines is not susceptible to satisfactory testing using procedures specified in paragraph (a)(1) of this section.

(3) If test procedures other than those in Subpart B of this part were used in certification of the engine family being tested under this subpart (other than alternate test procedures necessary for testing of a development engine instead of a low hour engine under §94.9), the manufacturer shall use the test procedures used in certification for production line testing.

(b)(1) The manufacturer may not adjust, repair, prepare, modify, or perform any emission test on any test engine unless this adjustment, repair, preparation, modification and/or test is documented in the manufacturer's engine assembly and inspection procedures and is actually performed by the manufacturer or unless this adjustment, repair, preparation, modification and/or test is required or permitted under this subpart or is approved in advance by the Administrator.

(2) Any adjustable engine parameter must be set to values or positions that are within the range specified in the approved application for certification.

(3) The Administrator may adjust or require to be adjusted any engine parameter which the Administrator has determined to be subject to adjustment for certification and production line testing, to any setting within the specified adjustable range of that parameter, as determined by the Administrator, prior to the performance of any test.

(c) Service Accumulation/Green Engine Factor. The manufacturer shall accumulate up to 300 hours of service on the engines to be tested. In lieu of conducting such service accumulation, the manufacturer may establish a Green Engine Factor for each regulated

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pollutant for each engine family to be used in calculating emissions test results. The manufacturer shall obtain the approval of the Administrator prior to using a Green Engine Factor.

(d) The manufacturer may not perform any maintenance on test engines after selection for testing.

(e) If an engine is shipped to a facility other than the production facility for production line testing, and an adjustment or repair is necessary because of such shipment, the engine manufacturer must perform the necessary adjustment or repair only after the initial test of the engine, except where the Administrator has determined that the test would be impossible to perform or would permanently damage the engine.

(f) If an engine cannot complete the service accumulation or an emission test, because of a malfunction, the manufacturer may request that the Administrator authorize either the repair of that engine or its deletion from the test sequence.

(g) *Retesting.* If an engine manufacturer determines that any production line emission test of an engine is invalid, the engine must be retested in accordance with the requirements of this subpart. Emission results from all tests must be reported to EPA, including test results the manufacturer determines are invalid. The engine manufacturer must also include a detailed explanation of the reasons for invalidating any test in the quarterly report required in § 94.508(e). In the event a retest is performed, a request may be made to the Administrator, within ten days of the end of the production quarter, for permission to substitute the after-repair test results for the original test results. The Administrator will either affirm or deny the request by the engine manufacturer within ten working days from receipt of the request.

### § 94.507 Sequence of testing.

(a) If one or more Category 1 or Category 2 engines fail a production line test, then the manufacturer must test two additional engines for each engine that fails.

(b) The two additional engines tested under paragraph (a) of this section shall be selected from either the next

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fifteen produced in that engine family, or from those engines produced in that engine family within 48 hours of the completion of the failed test.

[64 FR 73331, Dec. 29, 1999, as amended at 68 FR 9787, Feb. 28, 2003]

### § 94.508 Calculation and reporting of test results.

(a) Manufacturers shall calculate initial test results using the applicable test procedure specified in § 94.506(a). These results must also include the Green Engine Factor, if applicable. Round these results to the number of decimal places contained in the applicable emission standard expressed to one additional significant figure.

(b) To calculate test results, sum the initial test results derived in paragraph (a) of this section for each test engine, divide by the number of tests conducted on the engine, and round to the same number of decimal places contained in the applicable standard expressed to one additional decimal place. (For example, if the applicable standard is 7.8, then round the test results to two places to the right of the decimal.)

(c) To calculate the final test results for each test engine, apply the appropriate deterioration factors, derived in the certification process for the engine family, to the test results described in paragraph (b) of this section; round to the same number of decimal places contained in the applicable standard expressed to one additional decimal place. (For example, if the applicable standard is 7.8, then round the test results to two places to the right of the decimal.)

(d)(1) If, subsequent to an initial failure of a Category 1 or Category 2 production line test, the average of the test results for the failed engine and the two additional engines tested, is greater than any applicable emission standard or FEL, the engine family is deemed to be in non-compliance with applicable emission standards, and the manufacturer must notify the Administrator within 2 working days of such noncompliance.

(2) [Reserved]

(e) Within 30 calendar days of the end of each quarter in which production line testing occurs, each manufacturer